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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/776,671	02/06/2001	Masaru Honda	Q62961	2529

7590 09/23/2004

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EXAMINER	
HON, SOW FUN	
ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

S.C.

Office Action Summary	Application No.	Applicant(s)	
	09/776,671	HONDA ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/18/04 has been entered.

Response to Amendment

Withdrawn Rejections

2. The 35 U.S.C. 102(b) and 103(a) rejections have been withdrawn due to Applicant's amendment dated 05/18/04.

Claim Objections

3. Claim 1 is objected to because of the misspelled term "form" in the limitation of "at least one of particles or voids dispersed into a transparent or translucent resin, and having different refractive indices form the resin". It should be "from" in order to be consistent with the specification (page 11, lines 5-15).

New Rejections

Claim Rejections - 35 USC § 112

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. In claims 1, 18, 19, it is unclear what the refractive index of the void can be, unless it is the refractive index measured of the air trapped in the void.

7. In claims 12-13, it is unclear what the transflective polarizer is laminated to. Is it laminated to the light source (claim 12) or the light transmitting plate (claim 13) first before laminating the reflector to the other side of the reflector?

Claim Rejections - 35 USC § 103

8. Claims 1-2, 4, 6-9, 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk et al. (previously cited US 6,096,375) in view of Tanaka et al. (Machine English Translation of JP 2000-13511).

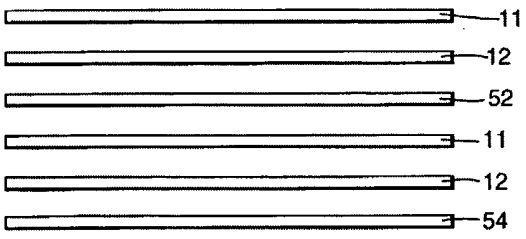

Fig. 5

Regarding claim 1, Ouderkirk teaches a dichroic polarizer 11 aligned with a reflective polarizer 12 (column 3, lines 5-15), wherein light ray 19 is preferentially transmitted by both dichroic polarizer 11 and reflective polarizer 12 (column 3, lines 25-35). Thus a transmission axis of the dichroic polarizer 12 and a transmission axis of reflective polarizer 12 are directed to the same direction. A transflector (partial reflector in which part of light transmits and remaining

part reflects) (column 7, lines 30-40) is inserted between the backlight 54 and the rear polarizer 12 (column 7, lines 15-25). See Fig. 5 of Ouderkirk on the previous page.

Ouderkirk fails to teach that the transflector comprises at least one layer selected from the group consisting of a layer of at least one of particles or voids dispersed into a transparent or translucent resin, and having different refractive indices from the resin, and a layer of a hardened film of a light or heat-setting resin comprising dispersed particles or voids having different refractive indices on the transparent or translucent resin.

Tanaka teaches a transflector (reflecting semi-transmitting) plate which has a light-scattering layer comprised of a resin layer with a dispersion of fine particles and a transflective layer (light-reflecting semi-transmitting) layer (section [0005]).

The resin layer with a dispersion of fine particles transparent (section [0007]), and the particles have a different refractive index (ratio of refractive index of particle to refractive index of resin without particle is 1.001-1.2)(section [0005]). A translucent resin is the result of routine experimentation. The hardened resin is light (ultraviolet rays) or heat-setting (section [0012]).

Tanaka teaches that the transflective layer has mica fillers in the binder (resin) mentioned (section [0009]). The resin is transparent, and the particles have a different refractive index (section [0007]). A translucent resin is the result of routine experimentation.

Tanaka teaches that providing the transflector (plate) in a transflective (reflection semi-transmitting) liquid crystal display device enables a high definition image to be displayed (abstract).

Ouderkirk teaches that the transflector (partial reflector) is used to form a transflective (column 7, lines 30-40) liquid crystal display (column 7, lines 55-60).

Therefore it would have been obvious to one of ordinary to one of ordinary skill in the art at the time the invention was made, to have used the transflector of Tanaka, as the transflector of Ouderkirk, in order to obtain a transflective display with the desired high definition image, as taught by Tanaka.

Regarding claim 2, Ouderkirk teaches that the dichroic polarizer 11 is an iodine-based polarizing film or a dye-based polarizing film (column 6, lines 40-55).

Regarding claim 4, Ouderkirk teaches that the reflective polarizer can be a multi-layer laminate composed of two or more kinds of polymer films (column 9, lines 50-55).

Regarding claim 6, Ouderkirk teaches that the reflective polarizer has a quarter wavelength film (coating) (column 17, lines 50-55), and can comprise a cholesteric liquid crystal (column 29, lines 30-40).

Regarding claim 7, Ouderkirk teaches that light ray 19 is preferentially transmitted by both dichroic polarizer 11 and reflective polarizer 12 (column 3, lines 25-35). Hence the fast axis of the transflector, which transmits fast, and a transmission axis of the dichroic polarizer are directed in the same direction in order to preferentially transmit light ray 19.

Regarding claim 8, Ouderkirk does not teach that the transflector has an in-plane phase retardation. The in-plane phase retardation of zero meets the claimed range of about 30 nm or less.

Regarding claim 9, Ouderkirk fails to teach that at least one layer of the transflector is a layer obtained by forming a metal film on the surface of a polymer film.

Tanaka teaches that a metal film is vapor-deposited onto one side of the light scattering layer (section [0004]) which is a polymer film (section [0006]) to form a reflective transflective plate (section [0006]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have formed a metal film on a surface of a polymer film layer of the transflector, as taught by Tanaka, for the transflector of Ouderkirk, in order to obtain a transflector with the desired metallic reflective properties.

Regarding claim 17, Ouderkirk teaches a partial reflector in which part of light transmits and remaining part reflects (column 7, lines 30-40).

Regarding claims 18-19, Ouderkirk fails to teach that the transflector comprises at least one layer selected from the group consisting of a layer of at least one of particles or voids dispersed into a transparent or translucent resin, and having different refractive indices from the resin, and a layer of a hardened film of a light or heat-setting resin comprising dispersed particles or voids having different refractive indices on the transparent or translucent resin.

Tanaka teaches a transflector (reflecting semi-transmitting) plate which has a light-scattering layer comprised of a resin layer with a dispersion of fine particles and a transflective layer (light-reflecting semi-transmitting) layer (section [0005]).

The resin layer with a dispersion of fine particles transparent (section [0007]), and the particles have a different refractive index (ratio of refractive index of particle to refractive index of resin without particle is 1.001-1.2)(section [0005]). A translucent resin is the result of routine experimentation. The hardened resin is light (ultraviolet rays) or heat-setting (section [0012]).

Tanaka teaches that the transflective layer has mica fillers in the binder (resin) mentioned (section [0009]). The resin is transparent, and the particles have a different refractive index (section [0007]). A translucent resin is the result of routine experimentation.

Tanaka teaches that providing the transflector (plate) in a transflective (reflection semi-transmitting) liquid crystal display device enables a high definition image to be displayed (abstract).

Ouderkirk teaches that the transflector (partial reflector) is used to form a transflective (column 7, lines 30-40) liquid crystal display (column 7, lines 55-60).

Therefore it would have been obvious to one of ordinary to one of ordinary skill in the art at the time the invention was made, to have used the layer of particles having different refractive indices dispersed in a transparent resin of Tanaka, and another layer formed on it, as taught by Tanaka, as the transflector of Ouderkirk, in order to obtain a transflective display with the desired high definition image, as taught by Tanaka.

9. Claims 3, 5, 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk et al. in view of Tanaka et al. as applied to claims 1-2, 4, 6-9, 16-19 above, and further in view of Weber et al. (previously cited US 5,686,979).

Ouderkirk in view of Tanaka has been discussed above, and fails to teach the light diffusive layer laminated on at least one surface of the dichroic polarizer, that the reflective polarizer is a polymer film which is made of two kinds of polymers consisting of a continuous polymer matrix with droplets dispersed therein, or that the light source is laminated between the transflective polarizer and a reflector.

Weber teaches a transflective liquid crystal (optical) display with a transflector 136 (column 12, lines 30-40).

Regarding claims 3, 16, Weber teaches that a light diffusive layer (optical diffuser 134) to promote viewing of the liquid crystal display (LCD) at a wide range of viewing angles (column 11, lines 65-70) is laminated on at least one surface of dichroic polarizer 140 (column 12, lines 1-5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have laminated a light diffusive layer on at least one surface of the dichroic polarizer of Ouderkirk in view of Tanaka, in order to obtain a liquid crystal display with a wide range of viewing angles, as taught by Weber.

Regarding claim 5, Weber teaches that the reflective polarizer can have switchable liquid crystal as droplets in a continuous polymer matrix (polymer-dispersed liquid crystal) (column 9, lines 30-40). Liquid crystal polymers are notoriously well known in the art.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have made the reflective polarizer of Ouderkirk from a polymer film comprising two or more kinds of polymers, consisting of a continuous polymer matrix with liquid crystal droplets dispersed therein, as taught by Weber, in order to obtain a reflective polarizer with switchable reflecting properties.

Regarding claim 12, Weber teaches the backlight 132 can be a light source (lamp) in a reflective housing (column 11, lines 60-65) and that a traditional reflector is more efficient (column 1, lines 60-70).

Ouderkirk teaches a transflector (partial reflector in which part of light transmits and remaining part reflects) (column 7, lines 30-40) inserted between the backlight 54 and the rear polarizer 12 (column 7, lines 15-25). See Fig. 5 of Ouderkirk below.

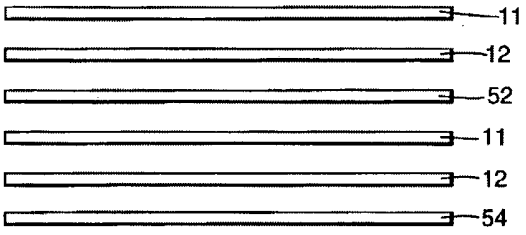

Fig. 5

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a reflector laminated behind a light source, as backlight 54 of Ouderkirk, such that the transflector of Ouderkirk in view of Tanaka, is laminated to the light source and the reflector in the same order, in order to obtain the desired efficiency in reflected backlight.

Regarding claim 13, Weber teaches a light transmitting plate (light guide) laminated (coupled) to backlight 132 (column 11, lines 60-65). Weber teaches the backlight 132 can be a light source (lamp) in a reflective housing (column 11, lines 60-65) and that a traditional reflector is more efficient (column 1, lines 60-70).

Ouderkirk teaches a transflector (partial reflector in which part of light transmits and remaining part reflects) (column 7, lines 30-40) inserted between the backlight 54 placed on the edge and the rear reflective polarizer 12 (column 7, lines 15-25). See Fig. 5 of Ouderkirk on the above.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have laminated the transflective polarizer of Ouderkirk in view of

Tanaka, to a light transmitting plate with a light source placed on the edge and a reflector, in the same order, in order to obtain the desired efficiency in reflected backlight.

Regarding claim 14, Weber teaches a light transmitting plate (light guide) laminated (coupled) to backlight 132 (column 11, lines 60-65). Weber teaches the backlight 132 can be a light source (lamp) in a reflective housing (column 11, lines 60-65) and that a traditional reflector is more efficient (column 1, lines 60-70).

Ouderkirk teaches that liquid crystal cell 52 and front dichroic polarizer 11 are placed after rear reflective polarizer 12. See Fig. 5 of Ouderkirk on the previous page.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have laminated the transflective polarizer of Ouderkirk in view of Tanaka, to a light transmitting plate with a light source placed on the edge and a reflector, in the same order, in order to obtain the desired efficiency as a polarizing light source, and placed this polarizing light source with the liquid crystal cell 52 and dichroic polarizer 11 of Ouderkirk, in the same order, in order to obtain a transflective liquid crystal display with the desired efficiency in reflected polarized backlight.

Regarding claim 15, Weber teaches that a phase (optical) retarder between the liquid crystal cell substrate 14 and the reflective polarizer 32 allows desirable optical characteristics over the visible wavelength range and at off-normal angles (column 5, lines 45-55).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have placed one or more phase retarders between the dichroic polarizer 11 and the liquid crystal cell 52 of Ouderkirk, in order to obtain a transflective liquid crystal

display with the desired optical display over the visible wavelength range and at off-normal angles, as taught by Weber.

10. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk in view of Tanaka as applied to claims 1-2, 4, 6-9, 16-19 above, and further in view of Maeda et al. (US 6,199,989).

Ouderkirk in view of Tanaka has been discussed above, and fails to teach a transflector wherein at least one of the layer is a layer obtained by dispersing scaly reflective particles such as mica into a pressure sensitive adhesive.

Regarding claim 10, Maeda teaches that it is well known to one of ordinary skill in the art at the time the invention was made that dispersing mica into a matrix causes light to be reflected at the particles and light to be transmitted through the gap among the particles (column 1, lines 25-35), that the particles can be dispersed in an adhesive material layer (column 1, lines 35-45), and that the adhesive can be pressure-sensitive (column 1, lines 44-46). The mica particle is inherently a scaly reflective particle as defined by Applicant's specification (original claim 11). Maeda teaches that a transflector (transflective plate) is formed from the mica dispersed layer (column 8, lines 15-25). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have dispersed the inherently scaly and reflective mica particles in a pressure sensitive adhesive in order to adhere the layer to the other layers of the transflector.

Regarding claim 11, Maeda teaches that the mica particle covered with titanium dioxide is provided with an iridescent luster (column 7, lines 30-40). Titanium dioxide is a metal oxide. Iridescent luster means that there is a spectrum of visible wavelengths reflected.

Maeda teaches that a transflective polarizer is formed with lamination of the transflective layer (plate) with mica particles, and is used in a transflective liquid crystal display (column 2, lines 1-10).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have applied the transflective layer of metal oxide-covered mica particles taught by Maeda, in the form of a pressure-sensitive adhesive layer, disclosed by prior art in Maeda, as the mica dispersed layer in the transflector of Ouderkirk in view of Tanaka, in order to obtain a transflective polarizer with the desired visible wavelengths reflected.

Response to Arguments

11. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon

Sow-Fun Hon

09/17/04